

# Claims

- [c1] 1. A pixel structure of a display, comprising:  
a switching transistor, wherein a gate terminal of the switching transistor is electrically connected to a scan line, and a source terminal thereof is electrically connected to a signal line;  
a driving transistor, wherein a gate terminal of the driving transistor is electrically connected to a drain terminal of the switching transistor;  
a first capacitor disposed between the gate terminal of the driving transistor and a source terminal thereof;  
a light emitting diode having a first terminal electrically connected to a operational voltage, and a second terminal electrically connected to a drain terminal of the driving transistor; and  
a reset transistor, wherein a gate terminal of the reset transistor is electrically connected to an autozero signal, a drain terminal is electrically connected to the driving transistor, and a source terminal electrically connected to a ground voltage.
- [c2] 2. The pixel structure of a display of claim 1, wherein the switching transistor, the driving transistor and the reset

transistor are thin film transistors.

- [c3] 3. The pixel structure of a display of claim 2, wherein the switching transistor, the driving transistor and the reset transistor are made from poly-silicon.
- [c4] 4. The pixel structure of a display of claim 2, wherein the switching transistor, the driving transistor and the reset transistor are made from amorphous silicon.
- [c5] 5. The pixel structure of a display of claim 1, wherein the first terminal of the light emitting diode is an anode, and the second terminal thereof is a cathode.
- [c6] 6. The pixel structure of a display of claim 1, wherein the light emitting diode is made from an organic material.
- [c7] 7. The pixel structure of a display of claim 1, further comprising a second capacitor disposed between the source terminal and the drain terminal of the reset transistor.
- [c8] 8. A pixel structure of a display, comprising:  
a switching transistor, wherein a gate terminal of the switching transistor is electrically connected to a scan line, and a source terminal thereof is electrically connected to a signal line;  
a driving transistor, wherein a gate terminal of the driv-

ing transistor is electrically connected to a drain terminal of the switching transistor;  
a first capacitor disposed between the gate terminal of the driving transistor and a source terminal thereof;  
a light emitting diode having a second terminal electrically connected to a ground voltage, and a first terminal electrically connected to a source terminal of the driving transistor; and  
a reset transistor, wherein a gate terminal of the reset transistor is electrically connected to an autozero signal, a source terminal is electrically connected to the driving transistor, and a drain terminal electrically connected to an operational voltage.

- [c9] 9. The pixel structure of a display of claim 8, wherein the switching transistor, the driving transistor and the reset transistor are thin film transistors.
- [c10] 10. The pixel structure of a display of claim 9, wherein the switching transistor, the driving transistor and the reset transistor are made from poly-silicon.
- [c11] 11. The pixel structure of a display of claim 9, wherein the switching transistor, the driving transistor and the reset transistor are made from amorphous silicon.
- [c12] 12. The pixel structure of a display of claim 8, wherein

the first terminal of the light emitting diode is an anode, and the second terminal thereof is a cathode.

- [c13] 13. The pixel structure of a display of claim 8, wherein the light emitting diode is made from an organic material.
- [c14] 14. The pixel structure of a display of claim 8, further comprising a second capacitor disposed between the first terminal and the second terminal of the light emitting diode.
- [c15] 15. A driving method of a pixel of a display, adapted for a pixel structure, wherein the pixel structure comprises: a switching transistor, a driving transistor, a first capacitor, a light emitting diode and a reset transistor, a gate terminal of the driving transistor electrically connected to a drain terminal of the switching transistor, the first capacitor disposed between the gate terminal of the driving transistor and a source terminal thereof, the light emitting diode having a first terminal electrically connected to a operational voltage, and a second terminal electrically connected to a drain terminal of the driving transistor, a drain terminal the reset transistor electrically connected to the driving transistor, and a source terminal thereof electrically connected to a ground voltage, the driving method comprising:

turning on the switching transistor at a threshold voltage writing timing, then turning off the reset transistor and applying a start voltage to the gate terminal of the driving transistor;

lowering the operational voltage to a low voltage at an data writing timing for turning off the light emitting diode, applying an data voltage to the gate terminal of the driving transistor; and

turning off the switching transistor after the data writing timing, raising the operational voltage to a high voltage, turning on the reset transistor for driving the light emitting diode.

[c16] 16. The driving method of a pixel of a display of claim 15, wherein a gate terminal of the switching transistor is electrically connected to a scan line, a source terminal thereof is electrically connected to a signal line, a drain terminal thereof is electrically connected to the gate terminal of the driving transistor, and the step of turning on the switching transistor is by inputting a scan voltage via the scan line.

[c17] 17. The driving method of a pixel of a display of claim 16, wherein the start voltage and the data voltage are applied to the gate terminal of the switching terminal via the signal line.

- [c18] 18. The driving method of a pixel of a display of claim 16, wherein the reset transistor is turned off after a delay time, when the switching transistor is turned on by the scanning voltage via the scan line; and the delay time is determined by a time of tuning on the switching transistor.
- [c19] 19. The driving method of a pixel of a display of claim 15, wherein the gate terminal of the reset transistor is electrically connected to an autozero line.
- [c20] 20. The driving method of a pixel of a display of claim 15, wherein the first terminal of the light emitting diode is an anode, and the second terminal thereof is a cathode.
- [c21] 21. The driving method of a pixel of a display of claim 15, wherein the start voltage  $V_o$  is applied to the gate terminal of the driving transistor so that a gate voltage thereof is  $V_o$ ; and a source voltage is  $V_o - V_T$ , wherein the  $V_T$  is a threshold voltage of the driving transistor.
- [c22] 22. The driving method of a pixel of a display of claim 21, wherein the data voltage  $V_{data}$  is applied to the gate terminal of the driving transistor so that a voltage drop on the first capacitor is  $V_{data} - (V_o - V_T + \Delta V_{data})$ , wherein the  $\Delta V_{data} = K(V_{data} - V_o)$ .

- [c23] 23. The driving method of a pixel of a display of claim 22, wherein the a driving current of the light emitting diode is proportional to  $(V_{data}-V_o-\Delta V_{data})^2$ .
- [c24] 24. The driving method of a pixel of a display of claim 22, wherein  $K=C_s/C_{total}$ ,  $C_s$  represents a capacitance of the first capacitor, and  $C_{total}$  is a sum of capacitances on the source terminal of the driving transistor.
- [c25] 25. The driving method of a pixel of a display of claim 24, wherein the pixel structure further comprises a second capacitor disposed between the source terminal and the drain terminal of the reset transistor for adjusting the  $K$ .
- [c26] 26. A driving method of a pixel of a display, adapted for a pixel structure, wherein the pixel structure comprises: a switching transistor, a driving transistor, a first capacitor, a light emitting diode and a reset transistor, a gate terminal of the driving transistor electrically connected to a drain terminal of the switching transistor, the first capacitor disposed between the gate terminal of the driving transistor and a source terminal thereof, the light emitting diode having a first terminal electrically connected to a source terminal of the driving transistor, and a second terminal electrically connected to a ground

voltage, a source terminal of the reset transistor electrically connected to the driving transistor, and a drain terminal thereof electrically connected to an operational voltage, the driving method comprising:

turning on the switching transistor at a threshold voltage writing timing, then raising the ground voltage to a high voltage for turning off the light emitting diode and applying a start voltage to the gate terminal of the driving transistor;

turning off the reset transistor at an data writing timing, and applying an data voltage to the gate terminal of the driving transistor; and

turning off the switching transistor after the data writing timing, lowering the ground voltage to a low voltage for driving the light emitting diode, and turning on the reset transistor.

- [c27] 27. The driving method of a pixel of a display of claim 26, wherein a gate terminal of the switching transistor is electrically connected to a scan line, a source terminal thereof is electrically connected to a signal line, a drain terminal thereof is electrically connected to the gate terminal of the driving transistor, and the step of turning on the switching transistor is by inputting a scan voltage via the scan line.



- [c28] 28. The driving method of a pixel of a display of claim 27, wherein the start voltage and the data voltage are applied to the gate terminal of the driving transistor via the signal line.
- [c29] 29. The driving method of a pixel of a display of claim 27, wherein the ground voltage is raised to the high voltage after a delay time, when the switching transistor is turned on by the scanning voltage via the scan line; and the delay time is determined by a time of tuning on the switching transistor.
- [c30] 30. The driving method of a pixel of a display of claim 26, wherein the gate terminal of the reset transistor is electrically connected to an autozero line.
- [c31] 31. The driving method of a pixel of a display of claim 26, wherein the first terminal of the light emitting diode is an anode, and the second terminal thereof is a cathode.
- [c32] 32. The driving method of a pixel of a display of claim 26, wherein the start voltage  $V_o$  is applied to the gate terminal of the driving transistor so that a gate voltage thereof is  $V_o$ ; and a source voltage is  $V_o - V_T$ , wherein the  $V_T$  is a threshold voltage of the driving transistor.
- [c33] 33. The driving method of a pixel of a display of claim

32, wherein the data voltage  $V_{data}$  is applied to the gate terminal of the driving transistor so that a voltage drop on the first capacitor is  $V_{data} - (V_o - V_T + \Delta V_{data})$ , wherein the  $\Delta V_{data} = K(V_{data} - V_o)$ .

[c34] 34. The driving method of a pixel of a display of claim 33, wherein the a driving current of the light emitting diode is proportional to  $(V_{data} - V_o - \Delta V_{data})^2$ .

[c35] 35. The driving method of a pixel of a display of claim 33, wherein  $K = C_s / C_{total}$ ,  $C_s$  represents a capacitance of the first capacitor, and  $C_{total}$  is a sum of capacitances on the source terminal of the driving transistor.

[c36] 36. The driving method of a pixel of a display of claim 35, wherein the pixel structure further comprises a second capacitor disposed between the first terminal and the second terminal of the light emitting diode for adjusting the  $K$ .